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(54) Title: STOCK PROTECTION DEVICE

(57) Abstract

A stock protection device comprising a frame adapted to receive and retain a vendible article, said frame comprising at least first and second relatively movable parts and fastening means to fasten said parts in retaining relationship with the article.

detent released via magnet.

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Title: "Stock Protection Device"

Description of the Invention

This invention relates to a stock protection device for articles of vendible stock particularly, but not exclusively, audio tape cassettes, video tape cassettes, compact discs and video games. In order to protect such articles, which are commonly known as "live stock" from unauthorised removal from, for example, a retail outlet, such articles are provided with a stock protection device which has an activating device which will activate an alarm if the article is taken past a sensor at an exit from the retail outlet if the activating device has not been removed from the article at a point of sale.

An object of the present invention is to provide a new and improved stock protection device.

According to the present invention we provide a stock protection device comprising a frame adapted to receive and retain a vendible article, said frame comprising at least first and second relatively movable parts and fastening means to fasten said parts in retaining relationship with the article.

Said at least two relatively movable frame parts may be interconnected.

The interconnection may be pivotable.

Alternatively, said at least two relatively movable frame parts may be separable and may be relatively pivotable when interconnected.

The frame may define an opening which is substantially wholly unobstructed by any part of the frame.

The frame may be of generally rectangular configuration, adapted to conform to the shape of the article to be protected.

The frame may comprise a first portion, providing a first side of the rectangle, and, extending perpendicular to said first portion at opposite ends thereof, second and third portions which provide a portion of second and third

sides of the rectangle, said first to third portions comprising a first part of the frame, and each of the second and third portions being pivotably connected to fourth and fifth parts respectively which provide the remainder of the said second and third sides respectively, a sixth portion extending perpendicular to the fourth portion and the seventh portion extending perpendicular to the fifth portion and said sixth and seventh portions together providing the fourth side of the rectangle, said fourth and sixth portions comprising a second part of the frame, said fifth and seventh portions comprising a third part of the frame, and said fastening means being adapted to fasten the sixth and seventh portions together.

The frame may be provided with a housing in which the fastening means is provided.

The fastening means may comprise a detent element carried by one part of the frame and engageable with an abutment of another part of the frame.

The detent element may be releasable in response to an externally applied magnetic force.

The detent element may comprise a leaf spring fastened to the one part of the frame.

The abutment may be provided on a tongue which projects from the other part of the frame.

When the frame is in a closed condition the tongue may project from the other part of the frame in a direction parallel to the fourth side of the rectangle and engage an end part of the detent element, which end part is movable generally transversely relative to the fourth side of the rectangle to permit of snap engagement with the abutment.

The detent element may be provided with a cam surface to engage and displace said end part of the detent element in a direction transverse to the fourth side out of the path of movement of the end of the tongue as the frame is closed.

The detent may comprise a re-entrant surface.

The frame may have, at least at a plurality of spaced positions, an edge engageable portion adapted to engage an edge of the article and first and second

face engageable portions adapted to engage opposite side faces of the article adjacent said edge.

Said edge and face engageable portions may be disposed in a generally channel configuration.

The channel may comprise a base part provided by said edge portion and a pair of spaced parallel limbs provided by said face engageable portions which are perpendicular to the base.

The frame may be of said channel configuration around at least substantially the whole of the peripheral extent of the frame.

The frame may comprise a one-piece moulding with appropriately dimensioned portions providing said pivotal interconnection between the frame parts.

The frame may be made as a moulding of a suitable synthetic plastics material.

The frame may be provided with at least one mounting portion.

Said at least one mounting portion may be disposed outwardly of the opening defined by the frame.

The mounting portion or portions may comprise a flange extending outwardly of the frame away from said opening.

The or each mounting portion may be provided on a side of the frame which carries or is adjacent to said fastening means.

The mounting portion may be adapted to receive an alarm activating device and/or an information display means. Where more than one mounting portion is provided one mounting portion may be adapted to receive an alarm activating device and the other mounting portion or portions information display means.

The mounting portion may comprise a guide means adapted slidably to receive an information display means.

The frame may be provided with a support portion adapted to be engaged with a display fitting to support the frame with the vendible article presented for display.

The support portion may be disposed outwardly of the opening defined by the frame.

The support portion may be provided on a side of the frame which carries, or is adjacent to said fastening means.

The support portion may be provided on a side of the frame which is the, in use, bottom side of the frame.

The support portion may be provided at least in part by the housing in which the fastening means is provided.

Where the fastening means comprises a detent element the detent element may be provided in the housing.

The housing may be provided on one of said sixth or seventh portions of the frame and the tongue being provided on the other of said sixth and seventh portions.

The portion provided with the tongue may be provided with a support portion of similar configuration to the housing.

Three embodiments of the invention will now be described by way of example with reference to the accompanying drawings, wherein:

FIGURE 1 is a perspective view of a stock protection device embodying the invention, shown in closed configuration;

FIGURE 2 is a perspective view, to a reduced scale, showing the device of Figure 1 in open configuration and in operative relationship with a compact cassette for an audio tape;

FIGURE 3 is a perspective view of another embodiment of the invention in closed configuration;

FIGURE 4 is a perspective view of the device of Figure 3 shown in an opened condition in operative relationship with a compact disc, and

FIGURE 5 is an exploded elevation of a fastening means for use in the frames of Figures 1 to 4.

Referring to Figures 1 and 2, a stock protection device is indicated generally at 10 and comprises a frame of generally channel shape in transverse cross-section comprising a base part 11 adapted to engage an edge 12 of a box 13 in which a compact cassette is conventionally offered for sale, and spaced parallel limbs 14 adapted to engage opposite side faces 15 of the box 13.

The frame 10 is of generally rectangular configuration and comprises a first part comprising a first portion 16 which provides a first side of the rectangle and, extending perpendicular to the first portion 16 at opposite ends thereof second and third portions 17, 18 respectively.

Pivotaly connected to the second and third portions 17, 18 by hinge means 19 are fourth and fifth portions 20, 21. The second and fourth portions and third and fifth portions respectively provide second and third sides of the rectangle. Extending perpendicular to the fourth and fifth portions are sixth and seventh portions 22, 23 respectively. The sixth and seventh parts, 22, 23 together provide the fourth side of the rectangle. The fourth and sixth portions comprise a second part of the frame and the fifth and seventh portions comprise a third part of the frame.

In the regions 24 at the corners of the rectangular frame the frame is strengthened by gusset parts 25 of the side limbs 14 of the frame so that the corners are relatively strong and rigid.

Formed integrally with the seventh portion 23 is a generally cubic housing 26 of a fastening means 27 which comprises a bolt element 28 engageable with an abutment in the form of an opening 29 in a tongue 30 provided on the sixth portion 22 and receivable in an opening 31 of the housing 26.

The bolt element 28 comprises a mounting sleeve 32 which has a groove 32a received in an opening provided in the housing 26 and the bolt element 28 is slidable in the sleeve member 32 and is normally spring biased into locking engagement with the aperture 30 by a coil compression spring 33. The

element 28 is provided with a magnetically susceptible part 34 so that the bolt element 28 may be withdrawn out of locking engagement with the aperture 30 by close approach of the part 34 to a suitable magnet, such as a permanent magnet, provided, for example, at the point of sale.

The sixth frame portion 22 is provided with a mounting part comprising a flange 40 which is adapted to carry an information display and an alarm activating device. For example, the flange 40 may be formed to receive a ticket information management system.

The frame is made as a one-piece moulding in a suitable synthetic plastics material, such as transparent polystyrene, ABS or polycarbonate, the hinge portions 19 being provided by suitably configured portions, for example, reduced thickness and/or width portions of the base 11 with slots 42 provided in the limbs 14 in this region.

The frame is moulded in an open condition similar to that shown in Figure 2 and is preferably moulded in a multi-cavity tool having a split line which lies substantially in the plane X-Y of Figure 2. It will be appreciated that such a tool is relatively economical to manufacture since it does not require any movable cores such as would be the case if the stock protection device were to be moulded in the form of a closed frame with an opening to receive the cassette.

As shown in Figure 2, a cassette box 13 is engaged with the frame by first sliding the cassette box 13 into the second and third frame portions until it is seated in the channel afforded by the first frame portion and then the joined together fourth, sixth and fifth, seventh frame portions are pivoted upwardly, as shown by the arrows in Figure 2 until the tongue 29 is moved into catching relationship with the bolt element 28.

The first portion 16 provides a support part which is adapted to engage a display fitting to present the cassette for display with the first part at the bottom of the frame. The cassette box 13 is displayed and offered for sale thus engaged within the stock protection device.

When a cassette is purchased the sales person, after receiving payment for the cassette offers the fastening means up into close proximity with a magnetic device so that the bolt element 28 is moved out of locking relationship with the aperture 29 to enable the frame parts to be pivoted downwardly from the position shown in Figure 1 to that shown in Figure 2 and the cassette removed. The frame is then stored, suitable storage means being provided at the point of sale, and then re-used with new stock.

Any other suitable releasable fastening means which can be released only by an authorised person may be utilised instead of the magnetically released catch means described hereinbefore, for example, a key released lock.

Referring now to Figures 3 and 4, an alternative embodiment is illustrated which is substantially the same as that illustrated in Figures 1 and 2 except that the frame is configured so as to engage with and retain a compact disc box. The stock protection device of the present invention may be made of any suitable configuration of any particular article which it is desired to protect.

Whilst it is envisaged that the protection device will be primarily used with audio cassettes such as a compact cassette as shown in Figures 1 and 2, compact discs such as shown in Figures 3 and 4 and video cassettes and double size compact discs and audio cassettes, the invention may be applied to other articles by utilising a frame of suitable configuration.

Because the frame engages only around the peripheral edge of the article and a small region of the side faces adjacent the peripheral edge the majority of the article is relatively unobstructed so that sales presentation is not impaired.

The information display flange 40 may have the respective display means and activating means attached thereto by suitable adhesive or in any other desired way. For example, the flange 40 may be provided with a pocket or a guide means, such as a pair of spaced parallel channels in which edge portions of a display ticket, or the like, may be slidably received, whereby a display ticket or the like may be mechanically interengaged so as to be retained therein.

Referring now to Figures 6 and 7 a further alternative embodiment is illustrated, which is similar to that of Figure 3 in that the device shown generally at 50 comprises a frame of generally channel shape in transverse cross-section comprising a base part 51 and spaced parallel limbs 52. The frame is of generally rectangular configuration and comprises first to seventh portions 53 - 59 providing three pivotally interconnected frame parts similar to those described in connection with the previous embodiments.

The device of the present embodiment essentially differs from the previous embodiments by the nature of the fastening means and the absence of a mounting part and the configuration of the support portion indicated generally at 60.

The seventh frame portion 58 has a support element comprising a housing 61 of generally channel configuration having end walls 61_a, 61_b and a curved bottom surface 61_c. A shallow channel shaped member 62 is received in the mouth of the channel and adhesively secured thereto. The member 62 carries a plurality of spigots 63. The housing 61 is fastened to the seventh portion 58 by a suitable adhesive and by virtue of the engagement of spigots 63 in apertures 64 provided in the portion 58, with part of a tongue element 65 sandwiched therebetween. The tongue element 65 has a head 66 which provides a hook element 67 having a re-entrant surface 68 and a cam surface 69.

The sixth portion 59 has a further support element comprising a housing 70 is of similar configuration to the housing 61 except that it does not have a member corresponding to the shallow channel member 62 but has end walls 70_a, 70_b respectively. The housing 70 is adhesively secured to the sixth portion 59.

A leaf spring 71 is secured to the housing 70 by virtue of being a friction fit on a spigot 72 formed integrally with the housing 70. The leaf spring 71 has a first limb 73 which is apertured to receive the spigot 72 and a second limb 74 which is inclined to the limb 73 and has an end part 75 adapted to engage the re-entrant surface 68 and hence act as a detent to maintain the frame closed.

The tongue may be made of any suitable material such as polypropylene. Because the tongue is sandwiched between the seventh portion 58 and the support element 61 and hence mechanically held in place, it may be made of any desired material suitable for the properties of the tongue itself without requiring the material to be compatible with adhesive fastening to the other portions.

The housings 61, 70 providing the support elements may be made of suitable material such as solid colour ABS which can be adhesively secured to the frame portions 58, 59. The spring 71 may be made of any suitable magnetically susceptible material such as spring steel and the spring may be held in place in the housing by any suitable means besides the frictional fit on the spigot described hereinbefore.

A security tag is housed in one of the housings 61, 70 and since these are made of opaque plastics material of suitable colour the security tag cannot be seen.

In use, as the second and third frame parts are pivoted towards each other, the cam surface 69 engages the end part 75 of the leaf spring 71 and displaces it transversely away from the fourth side of the rectangle defined by the frame to permit passage of the head part 66 of the tongue 65. The leaf spring 74 then springs back into engagement with the detent surface 68.

Engagement of a cassette with the frame and closing of the frame is otherwise as in the previously described embodiments.

The support elements 61, 70 provide a support portion which is adapted to engage a display fitting and present the cassette within the frame for display. Again, the support portion provided by the support element 61, 71 is at the bottom of the frame during display.

When it is desired to open the frame when a purchaser has chosen a cassette to be purchased the support element 70 is disposed adjacent a magnet 76 which attracts the limb 74 of the leaf spring, the sixth and seventh portions of the frame being urged towards each other so as to enable the end 75 of the leaf

spring to move past the inclined re-entrant surface 68 and then the second and third parts of the frame are pivoted apart so that the cassette can be removed.

If desired, the frame may be provided with a mounting portion similar to the mounting portion 40 of the first described embodiment.

As in connection with the first described embodiment the frame may be of any desired size to fit any desired suitable vendable article.

Although in the examples illustrated the frame is provided with two hinging positions so that the frame comprises three pivoted interconnected parts, if desired the frame may comprise only two pivoted interconnected parts or more than three pivoted interconnected parts and the positions of the pivot may be disposed as desired around the periphery of the frame. It is, however, preferred that the positions of pivot are spaced from the corners. If desired the frame parts may be separable, suitable means being provided to connect the frame parts together.

When said separable frame parts are connected together portions of the frames may be relatively movable and said movement may comprise pivotal movement.

Although in the above described examples the frames have a channel configuration around the whole of their periphery, if desired the frames may be provided with a channel configuration at only spaced positions around the periphery, for example at the corners. Further alternatively, although the frame has been described as being of channel configuration, at least at spaced positions around the periphery of the frame, if desired the frame may comprise portions which engage the edge of the article and opposite side face portions of the article at positions which are spaced apart around the periphery of the frame.

In the second aspect of the invention the stock protection device may be as described hereinbefore. Alternatively the device may comprise a rigid receptacle having side face and edge walls which define a cavity in which a vendible article is received and retained. The receptacle may be of frame configuration engaging an edge and adjacent side face portions of the article only

or may be of generally box configuration with completely closed side face walls or at least one side face wall may have at least one opening which may be of relatively great extent. The rigid receptacle is provided with an opening whereby an article can be introduced into the cavity with suitable releasable fastening means, which can only be released by an authorised person, to retain the article therein, either by engagement of the fastening means with the article itself or by means of a closure member which is secured to the receptacle by the releasable fastening means.

In both cases, however, the receptacle is provided with a mounting part which may be of similar configuration to the mounting parts illustrated hereinbefore but disposed on a part of the receptacle which is disposed on the opposite side of an edge wall of the cavity to that on which the article is disposed. As a result, visual inspection of the article when received in the cavity is unobstructed by the presence of the mounting means or any alarm activating device or information display means carried thereby.

The features disclosed in the foregoing description, or the accompanying drawings, expressed in their specific forms or in terms of a means for performing the disclosed function, or a method or process for attaining the disclosed result, or a class or group of substances or compositions, as appropriate, may, separately or in any combination of such features, be utilised for realising the invention in diverse forms thereof.

CLAIMS:

1. A stock protection device comprising a frame adapted to receive and retain a vendible article, said frame comprising at least first and second relatively movable parts and fastening means to fasten said parts in retaining relationship with the article.
2. A device according to claim 1 wherein said at least two relatively movable frame parts are interconnected.
3. A device according to claim 2 wherein the interconnection is pivotable.
4. A device according to claim 2 wherein said at least two relatively movable frame parts are separable and are relatively pivotable when interconnected.
5. A device according to any one of the preceding claims wherein the frame defines an opening which is substantially wholly unobstructed by any part of the frame.
6. A device according to any one of the preceding claims wherein the frame is of generally rectangular configuration, adapted to conform to the shape of the article to be protected.
7. A device according to claim 2 or any one of claims 3 to 6 when dependent on claim 2 wherein the frame comprises a first portion, providing a first side of the rectangle, and, extending perpendicular to said first portion at opposite ends thereof, second and third portions which provide a portion of second and third sides of the rectangle, said first to third portions comprising a

first part of the frame, and each of the second and third portions being pivotably connected to fourth and fifth parts respectively which provide the remainder of the said second and third sides respectively, a sixth portion extending perpendicular to the fourth portion and the seventh portion extending perpendicular to the fifth portion and said sixth and seventh portions together providing the fourth side of the rectangle, said fourth and sixth portions comprising a second part of the frame, said fifth and seventh portions comprising a third part of the frame, and said fastening means being adapted to fasten the sixth and seventh portions together.

8. A device according to any one of the preceding claims wherein the frame is provided with a housing in which the fastening means is provided.
9. A device according to any one of the preceding claims wherein the fastening means comprise a detent element carried by one part of the frame and engageable with an abutment of another part of the frame.
10. A device according to claim 9 wherein the detent element is releasable in response to a externally applied magnetic force.
11. A device according to claim 9 or claim 10 wherein the detent element comprises a leaf spring fastened to the one part of the frame.
12. A device according to any one of claims 9 to 11 wherein the abutment is provided on a tongue which projects from the other part of the frame.
13. A device according to claim 12 wherein when the frame is in a closed condition the tongue projects from the other part of the frame in a direction parallel to the fourth side of the rectangle and engages an end part of the detent

element, which end part is movable generally transversely relative to the fourth side of the rectangle to permit of snap engagement with the abutment.

14. A device according to claim 13 wherein the detent element is provided with a cam surface to engage and displace said end part of the detent element in a direction transverse to the fourth side out of the path of movement of the end of the tongue as the frame is closed.

15. A device according to any one of claims 9 to 14 wherein the detent element comprises a re-entrant surface.

16. A device according to any one of the preceding claims wherein the frame has, at least at a plurality of spaced positions, an edge engageable portion adapted to engage an edge of the article and first and second face engageable portions adapted to engage opposite side faces of the article adjacent said edge.

17. A device according to claim 16 wherein said edge and face engageable portions are disposed in a generally channel configuration.

18. A device according to claim 17 wherein the channel comprises a base part provided by said edge portion and a pair of spaced parallel limbs provided by said face engageable portions which are perpendicular to the base.

19. A device according to claim 17 or claim 18 wherein the frame is of said channel configuration around at least substantially the whole of the peripheral extent of the frame.

20. A device according to any one of the preceding claims wherein the frame comprises a one-piece moulding with appropriately dimensioned portions providing said pivotal interconnection between the frame parts.

21. A device according to any one of the preceding claims wherein the frame is made as a moulding of a suitable synthetic plastics material.
22. A device according to any one of the preceding claims wherein the frame is provided with at least one mounting portion.
23. A device according to claim 22 wherein said at least one mounting portion is disposed outwardly of the opening defined by the frame.
24. A device according to claim 23 wherein the or each mounting portion comprises a flange extending outwardly of the frame away from said opening.
25. A device according to any one of claims 22 to 24 wherein the or each mounting portion is provided on a side of the frame which carries or is adjacent to said fastening means.
26. A device according to any one of claims 22 to 25 wherein the mounting portion is adapted to receive an alarm activating device and/or an information display means.
27. A device according to claim 26 wherein, where more than one mounting portion is provided, one mounting portion is adapted to receive an alarm activating device and the other mounting portion or portions adapted to receive information display means.
28. A device according to claim 26 or claim 27 wherein the mounting portion comprises a guide means adapted slidably to receive an information display means.

29. A device according to any one of the preceding claims wherein the frame is provided with a support portion adapted to be engaged with a display fitting to support the frame with the vendible article presented for display.
30. A device according to claim 29 wherein the support portion is disposed outwardly of the opening defined by the frame.
31. A device according to claim 29 or claim 30 wherein the support portion is provided on a side of the frame which carries, or is adjacent to said fastening means.
32. A device according to any one of claims 29 to 31 wherein the support portion is provided on a side of the frame which is the, in use, bottom side of the frame.
33. A device according to any one of claims 29 to 32 when dependent directly or indirectly on claim 8 wherein the support portion is provided at least in part by the housing in which the fastening means is provided.
34. A device according to claim 33 when dependent directly or indirectly on claim 9 when dependent on claim 8, wherein the detent element is provided in the housing.
35. A device according to claim 34 wherein the housing is provided on one of said sixth or seventh portions of the frame and the tongue being provided on the other of said sixth and seventh portions.
36. A device according to claim 34 or claim 35 wherein the portion provided with the tongue is provided with a support portion of similar configuration to the housing.

37. A device substantially as hereinbefore described with reference to Figures 1 to 5 of the accompanying drawings.

38. A device substantially as hereinbefore described with reference to Figures 6 and 7 of the accompanying drawings.

39. Any novel feature or novel combination of features disclosed herein and/or in the accompanying drawings.

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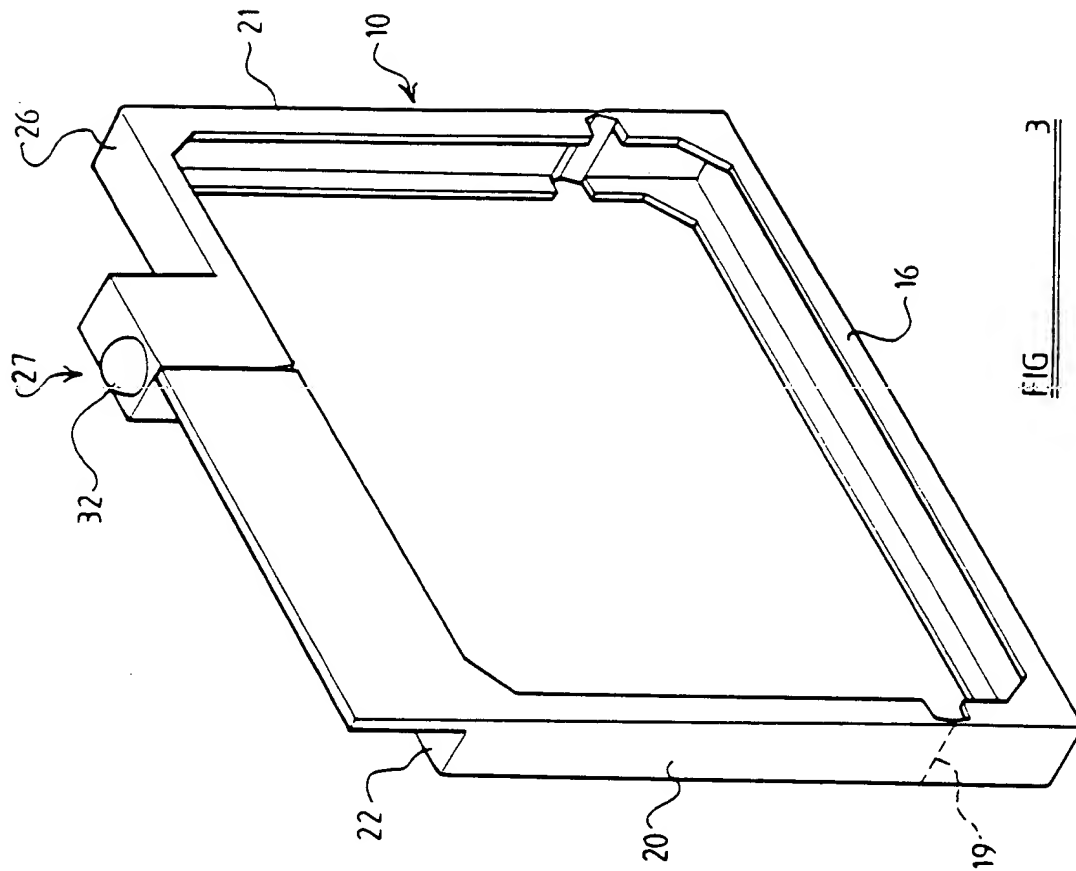


FIG 3

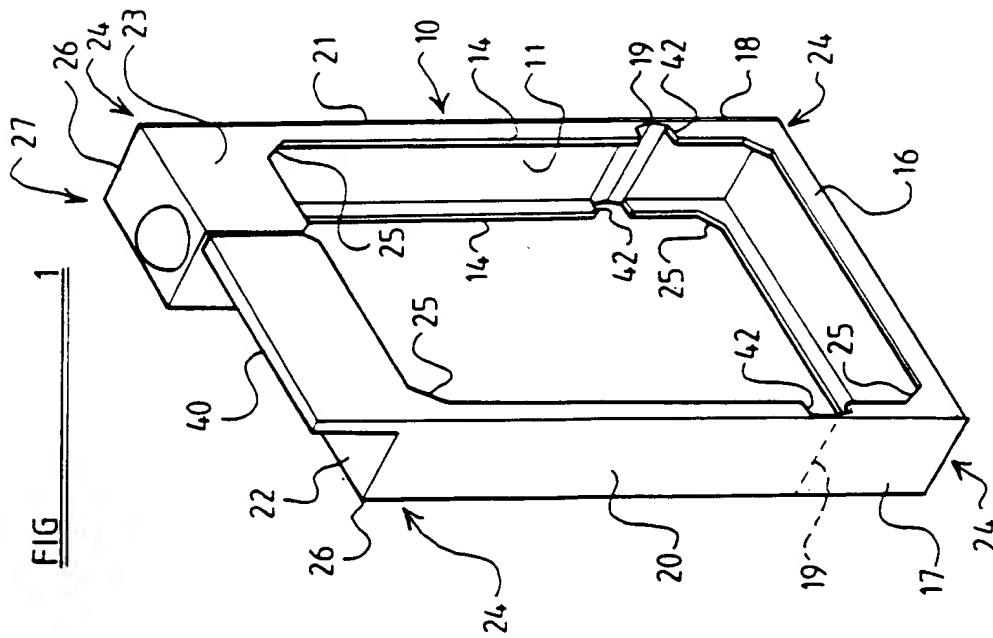
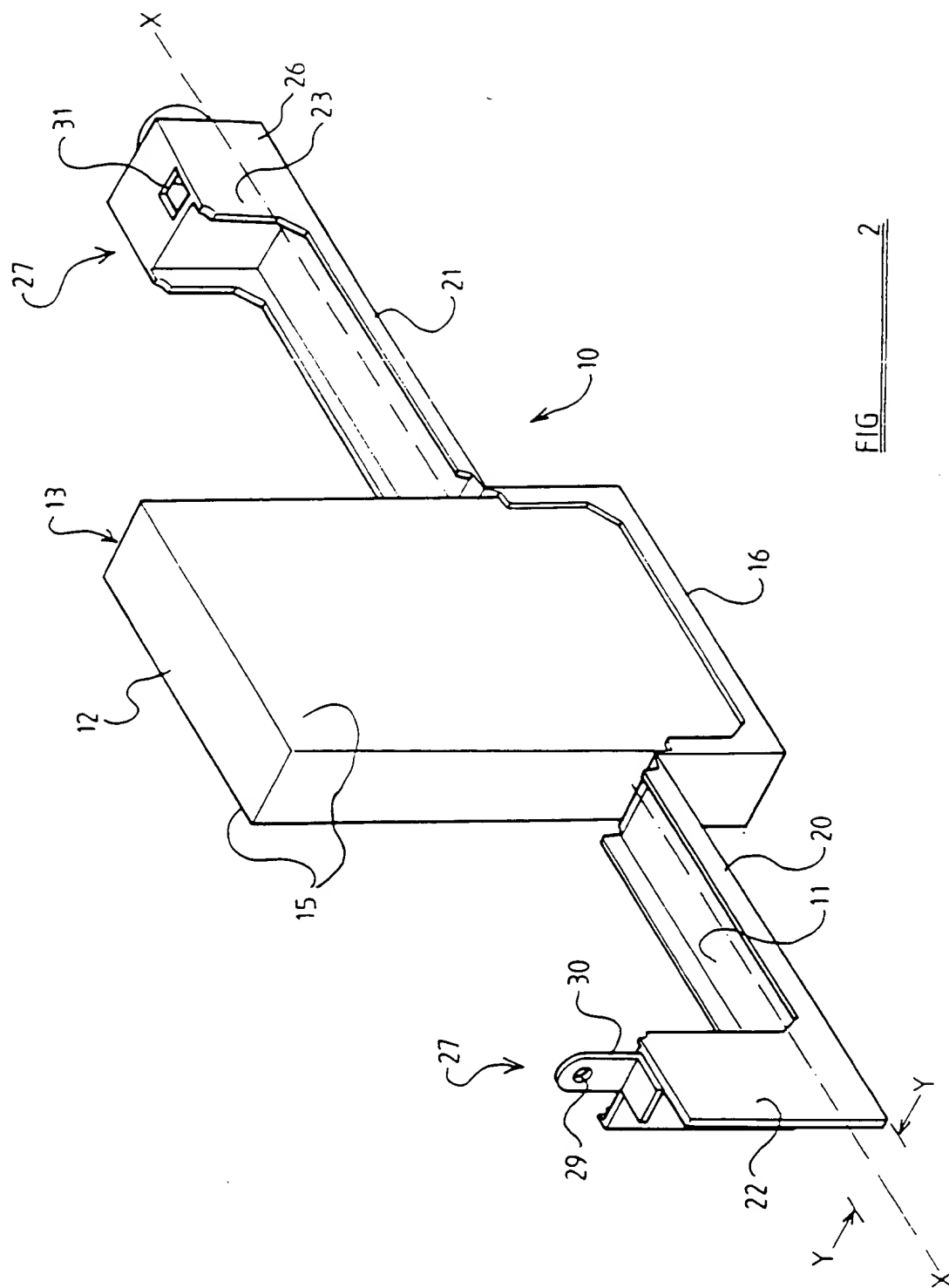
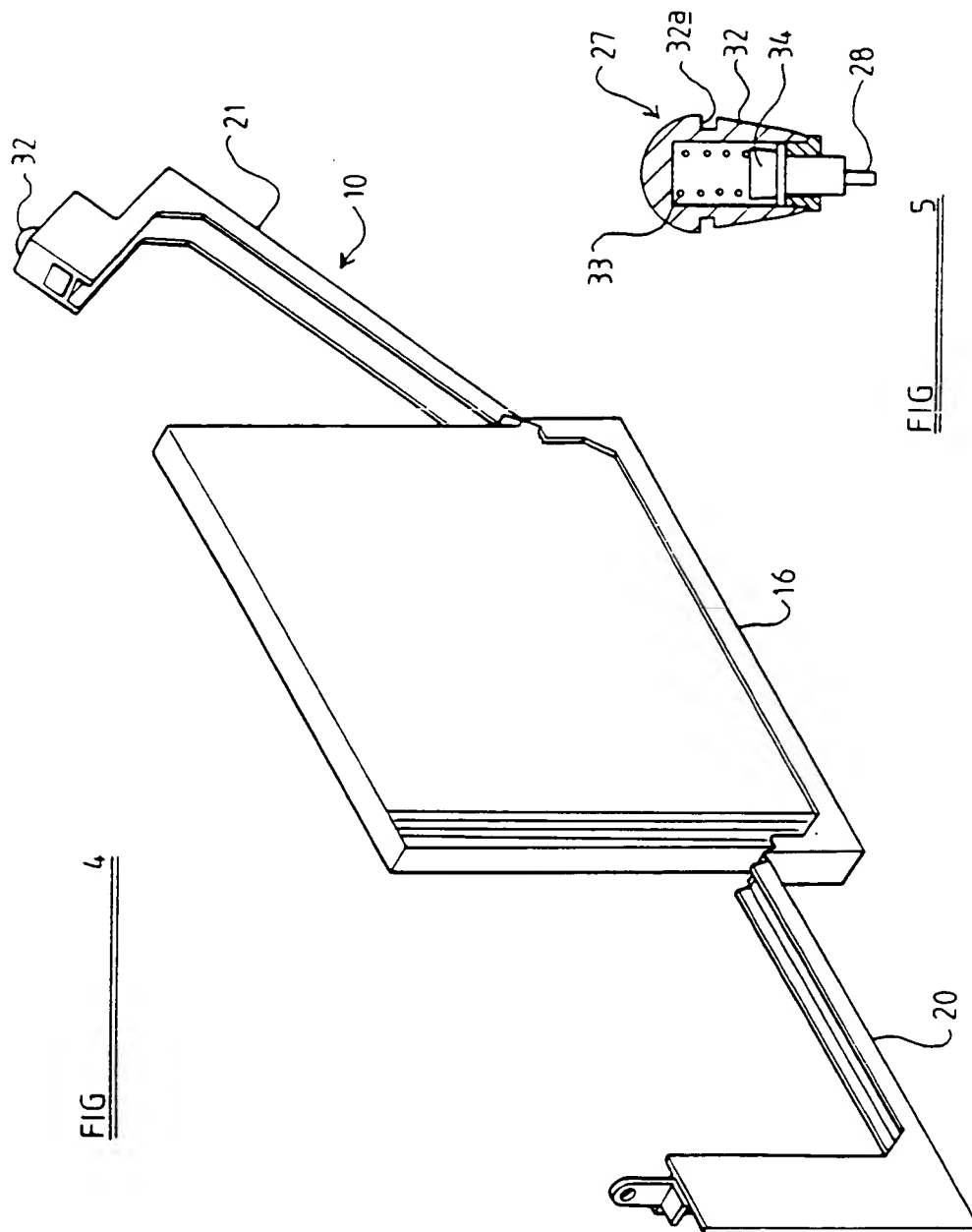
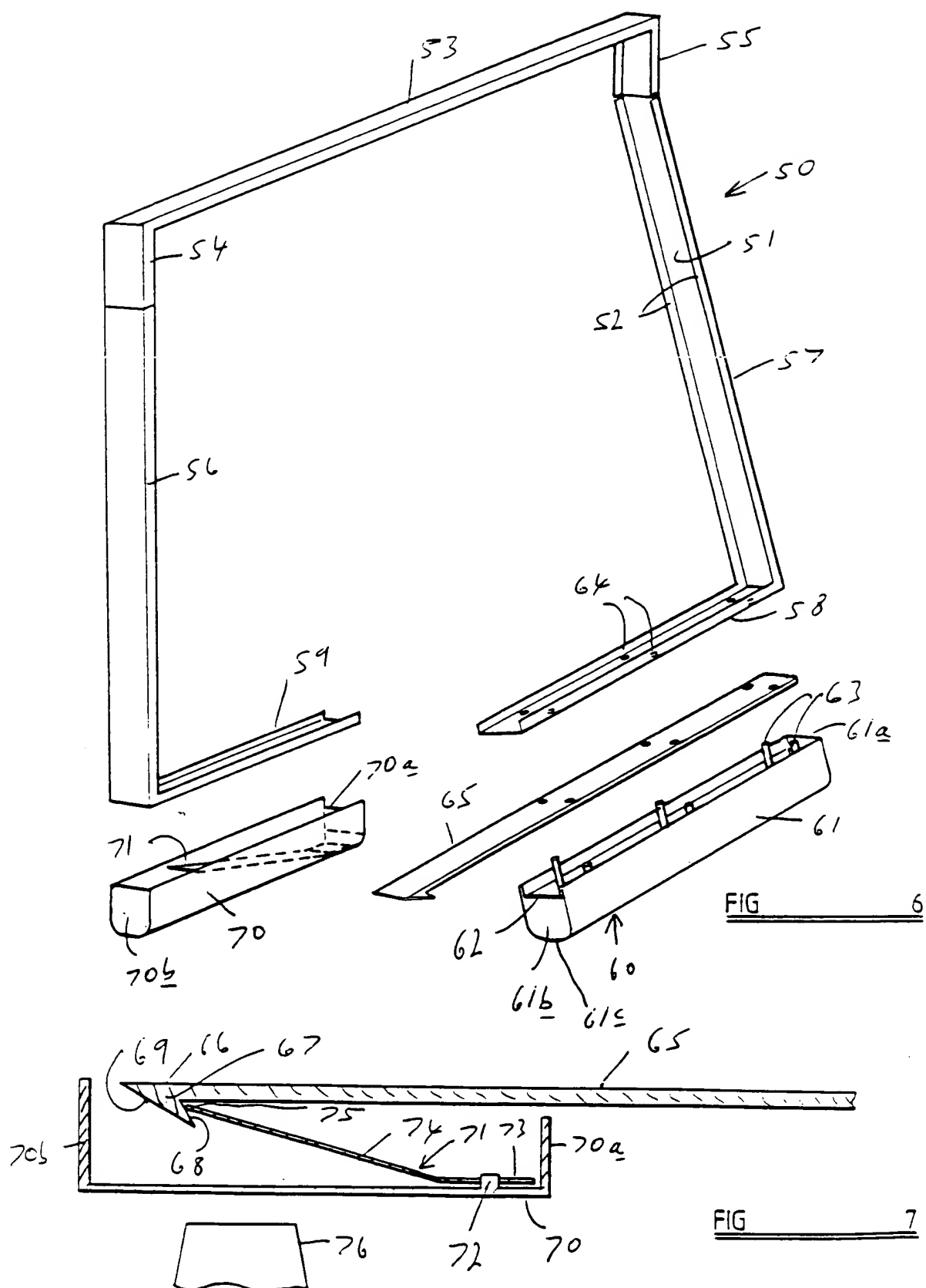


FIG 1



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INTERNATIONAL SEARCH REPORT

PCT/GB 93/00209

International Application No.

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all) ⁶		
According to International Patent Classification (IPC) or to both National Classification and IPC		
Int.Cl. 5 E05B73/00; A47F7/024		
II. FIELDS SEARCHED		
Minimum Documentation Searched ⁷		
Classification System	Classification Symbols	
Int.Cl. 5	E05B ; A47F	
Documentation Searched other than Minimum Documentation to the Extent that such Documents are included in the Fields Searched ⁸		
III. DOCUMENTS CONSIDERED TO BE RELEVANT⁹		
Category ¹⁰	Citation of Document, ¹¹ with indication, where appropriate, of the relevant passages ¹²	Relevant to Claim No. ¹³
X	US,A,3 495 716 (GREGORY) 17 February 1970 see column 2, line 15; figures 1-5 see column 3, line 13 - line 30 & ,A, ---	1-5,6,8, 16-23, 29-31
X	EP,A,0 211 088 (FELSKOWSKY R.) 25 February 1987 see abstract; figures 1-5 see column 3, line 31 - line 39 --- -/--	1-6,8, 16-19
<p>¹⁰ Special categories of cited documents:</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> <p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.</p> <p>"A" document member of the same patent family</p>		
IV. CERTIFICATION		
Date of the Actual Completion of the International Search		Date of Mailing of this International Search Report
28 APRIL 1993		04. 06. 93
International Searching Authority		Signature of Authorized Officer
EUROPEAN PATENT OFFICE		JONES C.T.

III. DOCUMENTS CONSIDERED TO BE RELEVANT (CONTINUED FROM THE SECOND SHEET)		
Category *	Citation of Document, with indication, where appropriate, of the relevant passages	Relevant to Claim No.
A	WO,A,9 007 183 (N W TRADING APS) 28 June 1990 see abstract; figures 1-4,7,8 see page 2, last paragraph - page 3, paragraph 1 see page 4, last paragraph - page 5, paragraph 1 see page 6, last paragraph ---	8-15,21
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